

EXHIBIT A

1. A method for assembling an overlay to a wheel having a disk portion and a rim portion circumscribing said disk portion, said disk and rim portions defining an outboard surface of said wheel, said method comprising the steps of:

forming said overlay to have an inboard surface configured to face said outboard surface of said wheel upon assembling said overlay to said wheel;

providing a means, interposed said outboard surface of said wheel and said overlay, for temporarily securing said overlay to said outboard surface of said wheel and for positively positioning said overlay on said outboard surface of said wheel, said securing and positioning means causing said overlay to be centrally positioned with respect to said rim portion of said wheel and spaced from said outboard surface of said wheel so as to define at least one gap therebetween;

depositing a curable adhesive on at least one of said inboard and outboard surfaces such that said curable adhesive is between said overlay and said wheel upon assembling said overlay with said wheel; and

temporarily securing said overlay to said outboard surface of said wheel with said securing and positioning means so as to positively position said overlay centrally relative to said rim portion of said wheel and so as to form said at least one gap therebetween, said curable adhesive filling at least a portion of said at least one gap, said securing and positioning means securing and positioning said overlay for a duration sufficient for said curable adhesive to permanently cure and thereby permanently secure said overlay to said wheel.

2. The method of Claim 1 wherein said curable adhesive is a moisture-curable adhesive, and wherein said securing step comprises said curable adhesive filling a limited portion of said at least one gap so as to provide a quantity of moisture-laden air trapped between said overlay and said wheel.

3. The method of Claim 1 wherein said curable adhesive is an air-curable adhesive, and wherein said securing step comprises said curable adhesive filling a limited portion of said at least one gap so as to provide a quantity of air trapped between said overlay and said wheel.

4. The method of Claim 1 wherein said providing step comprises providing said securing and positioning means in the form of a second adhesive on at least one of said inboard and outboard surfaces, said second adhesive having mechanical properties that are lower than corresponding mechanical properties of said curable adhesive.

5. The method of Claim 4 wherein said securing step comprises adhering an adhesive tape to at least one of said inboard and outboard surfaces, said adhesive tape constituting said second adhesive.

6. The method of Claim 4 wherein said securing step comprises depositing a hot melt adhesive on at least one of said inboard and outboard surfaces, said hot melt adhesive constituting said second adhesive.

7. The method of Claim 1 wherein said forming step further comprises forming a plurality of projections on said inboard surface of said overlay, said plurality of projections constituting said securing and positioning means, and wherein said securing step comprises resiliently engaging each of said plurality of projections with said outboard surface of said wheel.

8. The method of Claim 1 wherein said securing and positioning step comprises securing and positioning said overlay to said wheel with a fastener, said fastener constituting said securing and positioning means.

9. A method for assembling an overlay to a wheel having a disk portion and a rim portion circumscribing said disk portion, said disk and rim portions defining an outboard surface of said wheel, said method comprising the steps of:

forming said overlay to have an inboard surface configured to face said outboard surface of said wheel upon assembling said overlay to said wheel, said overlay being formed to further have a plurality of projections extending from said inboard surface, said plurality of projections being adapted to temporarily secure said overlay to said outboard surface of said wheel, center said overlay on said outboard surface of said wheel, and cause said overlay to be spaced apart from said outboard surface of said wheel so as to define a gap therebetween;

depositing a curable adhesive on at least one of said inboard and outboard surfaces such that said curable adhesive is between said overlay and said wheel upon assembling said overlay with said wheel; and

assembling said overlay to said wheel by resiliently engaging each of said plurality of projections with said outboard surface of said wheel so as to temporarily secure said overlay to said outboard surface of said wheel, center said overlay on said outboard surface of said wheel, and form said gap between said overlay and said wheel, said curable adhesive filling at least a portion of said gap, said plurality of projections securing said overlay for a duration sufficient for said curable adhesive to cure and thereby permanently secure said overlay to said wheel.

10. The method of Claim 9 further comprising the step of forming said wheel to have a wheel bead seat on said rim portion, said wheel bead seat forming a peripheral surface feature on said outboard surface of said wheel, wherein said assembling step comprises resiliently engaging said plurality of projections with said peripheral surface feature so as to secure said overlay to said wheel.

11. A method for assembling an overlay to a wheel having a disk portion and a rim portion circumscribing said disk portion, said disk and rim portions defining an outboard surface of said wheel, said method comprising the steps of:

forming said overlay to have an inboard surface configured to face said outboard surface of said wheel upon assembling said overlay to

said wheel, said overlay being configured so as to form a gap between said inboard and outboard surfaces upon assembling said overlay to said wheel;

selectively depositing a curable adhesive on at least one of said inboard and outboard surfaces such that said curable adhesive is between said overlay and said wheel upon assembling said overlay with said wheel, said curable adhesive being deposited in an amount that is insufficient to entirely fill said gap; and

assembling said overlay to said outboard surface of said wheel with said curable adhesive so as to form said gap and permanently secure said overlay to said wheel, at least one void being present between said overlay and said outboard surface of said wheel.

12. The method of Claim 11 wherein said depositing step comprises selectively depositing said curable adhesive along a peripheral edge of said at least one of said inboard and outboard surfaces so as to exclude water and dirt from said gap after said assembling step.

13. The method of Claim 12 further comprising the step of forming said wheel to have openings in said outboard surface, and wherein said depositing step further comprises selectively depositing said curable adhesive around said openings so as to exclude water and dirt from said gap after said assembling step.

14. The method of Claim 11 wherein said depositing step comprises depositing a second adhesive on at least one of said inboard and outboard surfaces such that said second curable adhesive is between said overlay and said wheel after said assembling step.

15. The method of Claim 14 further comprising the step of temporarily securing and positively positioning said overlay on said wheel with said second adhesive for a duration sufficient for said curable adhesive to cure.

16. The method of Claim 14 wherein said second adhesive has a lower maximum operating temperature than said curable adhesive, and wherein said depositing step comprises selectively depositing said second adhesive so as to be located at radially outward regions of said gap and selectively depositing said curable adhesive so as to be located at radially inward regions of said gap.

17. The method of Claim 14 wherein said second adhesive is a UV-stable pre-colored adhesive.

18. The method of Claim 14 wherein said second adhesive has a faster cure rate than said curable adhesive.

19. The method of Claim 14 wherein said second adhesive is characterized by lower mechanical properties as compared to said curable adhesive.

20. The method of Claim 11 wherein said depositing step comprises selectively depositing said curable adhesive so as to alter heat transfer between said wheel and said overlay.

21. The method of Claim 11 wherein said depositing step comprises selectively depositing said curable adhesive so as to balance said wheel.

22. The method of Claim 11 wherein said depositing step comprises selectively depositing said curable adhesive so as to alter the acoustical characteristics of said overlay and said wheel.

23. The method of Claim 11 wherein said curable adhesive is a moisture-curable adhesive, and wherein said assembling step results in said at least one void entrapping moisture-laden air between said overlay and said wheel.

24. The method of Claim 11 wherein said curable adhesive is an air-curable adhesive, and wherein said assembling step results in said at least one void entrapping air between said overlay and said wheel.

25. A method for assembling an overlay to a wheel, said method comprising the steps of:

forming said wheel to have a disk portion and a rim portion circumscribing said disk portion, said disk and rim portions defining an outboard surface of said wheel, said outboard surface having apertures formed therein;

forming said overlay to have an inboard surface configured to face said outboard surface upon assembling said overlay to said wheel, said overlay being configured so as to form a gap between said inboard and outboard surfaces upon assembling said overlay to said wheel;

depositing a curable adhesive on said outboard surface such that said curable adhesive is between said overlay and said wheel upon assembling said overlay with said wheel, said curable adhesive being selectively deposited along a peripheral edge of said outboard surface and around said apertures so as to exclude water and dirt from said gap upon assembling said overlay to said wheel; and

assembling said overlay to said outboard surface of said wheel with said curable adhesive so as to form said gap and permanently secure said overlay to said wheel, at least one void being present between said overlay and said outboard surface of said wheel, said at least one void entrapping air between said overlay and said wheel.

26. The method of Claim 25 wherein said depositing step comprises depositing a second adhesive on at least one of said inboard and outboard surfaces such that said second curable adhesive is between said overlay and said wheel after said assembling step.

27. The method of Claim 26 further comprising the step of temporarily securing and positively positioning said overlay on said wheel with said second adhesive for a duration sufficient for said curable adhesive to cure.

28. The method of Claim 26 wherein said second adhesive has a lower maximum operating temperature than said curable adhesive, and wherein said depositing step comprises selectively depositing said second adhesive

so as to be located at radially outward regions of said gap and selectively depositing said curable adhesive so as to be located at radially inward regions of said gap.

29. The method of Claim 26 wherein said second adhesive has a faster cure rate than said curable adhesive.

30. The method of Claim 26 wherein said second adhesive is characterized by lower mechanical properties as compared to said curable adhesive.

31. The method of Claim 25 wherein said curable adhesive is a moisture-curable adhesive, and wherein said assembling step results in said at least one void entrapping moisture-laden air between said overlay and said wheel.

32. A wheel and overlay assembly comprising:

a disk portion and a rim portion circumscribing said disk portion, said disk and rim portions defining an outboard surface of said wheel;

an overlay juxtaposed said outboard surface of said wheel, said overlay having an inboard surface complementary to and facing said outboard surface of said wheel;

means attached to said inboard surface of said overlay and engaging said outboard surface of said wheel for temporarily securing and for positively positioning said overlay on said outboard surface of said wheel, said securing and positioning means being attached to said inboard surface prior to securing and positioning said overlay on said wheel and causing said overlay to be centrally located with respect to said rim portion of said wheel and spaced from said outboard surface of said wheel so as to define at least one gap therebetween when said overlay is mounted on said wheel; and

a permanent adhesive disposed in said at least one gap for permanently securing said overlay to said wheel.

33. The wheel and overlay assembly of Claim 32 wherein said securing and positioning means comprises an adhesive tape.

34. The wheel and overlay assembly of Claim 32 wherein said securing and positioning means comprises a hot melt adhesive.

35. The wheel and overlay assembly of Claim 32 wherein said securing and positioning means comprises a plurality of projections extending from said inboard surface of said overlay, each of said plurality of projections resiliently engaging said outboard surface of said wheel so as to secure said overlay to said wheel.

36. The wheel and overlay assembly of Claim 35 wherein said wheel further comprises a wheel bead seat formed on said rim portion, said wheel bead seat forming a peripheral surface feature on said outboard surface of said wheel, said plurality of projections resiliently engaging said peripheral surface feature so as to secure said overlay to said wheel.

37. The wheel and overlay assembly of Claim 32 wherein said securing and positioning means comprises a fastener.

38. An automobile wheel and overlay assembly comprising:  
a disk portion and a rim portion circumscribing said disk portion, said disk and rim portions defining an outboard surface of said wheel;

a wheel bead seat formed on said rim portion, said wheel bead seat forming a peripheral surface feature on said outboard surface of said wheel;

an overlay juxtaposed said outboard surface of said wheel, said overlay having an inboard surface complementary to and facing said outboard surface of said wheel;

a plurality of projections attached to and extending from said inboard surface of said overlay, each of said plurality of projections resiliently engaging said peripheral surface feature so as to secure said



overlay to said wheel and positively position said overlay on said outboard surface of said wheel, said plurality of projections causing said overlay to be centrally located with respect to said rim portion of said wheel and spaced from said outboard surface of said wheel so as to define at least one gap therebetween; and

an adhesive disposed in said at least one gap for permanently securing said overlay to said wheel.

39. An overlay for a wheel and overlay assembly having an outer surface and an axis, said overlay comprising:

an ornamental panel member having a substantially uniform thickness; a first surface; and an oppositely disposed second surface;

a decorative layer adhered to said first surface of said ornamental panel member;

means attached to said second surface of said ornamental panel member and engaging said outer surface of said wheel for temporarily securing and positioning said ornamental panel member on said wheel, said securing and positioning means being attached to said second surface of said ornamental panel member and causing said ornamental panel member to be centrally mounted with respect to said rim portions of said wheel and spaced from said outboard surface of said wheel so as to define at least one gap therebetween; and

adhesive means selectively positioned between said second surface of said ornamental panel member and said outer surface of said wheel, said adhesive means permanently attaching said overlay directly to said outer surface of said wheel;

whereby said decorative layer of said first surface substantially covers said outer surface of said wheel.

40. In a composite vehicle wheel having a wheel with a web portion and a rim portion circumscribing said web portion, said web portion defining an outboard surface of said composite vehicle wheel, an ornamental

panel member attached to said outboard surface of said web portion, said ornamental panel member having a first surface and an oppositely disposed second surface:

adhesive means selectively positioned between said ornamental panel member and said outboard surface of said wheel, said adhesive means temporarily and permanently attaching said overlay directly to said outboard surface of said wheel;

a decorative layer adhered to said first surface of said ornamental panel member;

said ornamental panel member being a thin panel of substantially uniform thickness; and

means for temporarily and permanently securing and positioning said ornamental panel member on said wheel, said securing and positioning means attached to said ornamental panel member and engaging said outboard surface for causing said ornamental panel member to be centrally mounted with respect to said rim portion of said wheel and spaced from said outboard surface of said wheel so as to define at least one gap therebetween;

whereby when said ornamental panel member is directly attached to said outboard surface of said wheel by said adhesive means said decorative layer of said first surface substantially covers said outboard surface of said wheel.